

REMARKS

Please amend Claim 6. Claims 1-38 remain in this application.

1. Claim Rejections under 35 U.S.C. § 112

The Office Action states that Claim 6 is rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Support for the amended claim 6 can be found generally in the specification and claims as filed and at least at page 4, lines 11-14. The Applicant respectfully submits that this rejection is moot in view of the present amendment of claim 6.

2. Rejections under 35 U.S.C. § 103(a)

The 10/24/2003 Office Action recites routinely "Applicant's arguments with respect to claims 1-38 have been considered but are moot in view of the new ground(s) of rejection." The Applicant respectfully disagrees. The "new grounds of rejection" are in fact based on the same section, 35 U.S.C. 103(a), with the same primary reference, Rosenblatt et al (U.S. Patent No. 4,681,739) combined with different secondary references. At least two points raised in the arguments of previous response are still valid and maintained by the Applicant. First, the combination of new secondary references with the Rosenblatt reference does not cure the defects of the Rosenblatt reference. The combined references neither teach nor suggest the present claimed invention. Second, the rejections under 35 U.S.C. 103(a) based on the new combination of references do not satisfy the requirements of a *prima facie* case of obviousness. Most importantly, as discussed in the Amendment mailed July 31, 2003, the scope and content of the prior art have not been characterized. Applicant respectfully submits that if the scope and content of the prior art were properly characterized and considered, the present rejections under 35 U.S.C. 103(a) would be withdrawn.

a. Rejection of claims 1-11 and 14-37 over Rosenblatt et al. in view of Hedman et al.

The Office Action bearing a mailing date of October 24, 2003 (the "10/24/2003 Office Action") states that claims 1-11 and 14-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenblatt et al (U.S. Patent No. 4,681,739) in view of Hedman et al (U.S. Patent No. 6,327,812). The Applicant respectfully submits that this rejection is unwarranted and should be withdrawn.

i. Rosenblatt et al. U.S. Patent No. 4,681,739 Does Not Teach or Suggest the Claimed Invention

Rosenblatt et al. discloses and claims methods of sterilizing articles, articles having gas impermeable surfaces and gas impermeable surfaces, in particular dental and medical implements and products (e.g., column 2, line 62 to column 3, line 12). "This invention provides a method for sterilizing microbiologically contaminated articles, such as the dry and gas impermeable surfaces of medical or dental implements or other articles contaminated with live bacteria and bacterial spores." Column 3, lines 22-26. Rosenblatt at column 4, lines 25-30 states: "Moreover, as described in greater detail below, when humidification is conducted in a closed exposure chamber, the chlorine dioxide gas may be introduced into the chamber while it still contains the humid air employed during the humidification procedure." When described in greater detail, the size of the exposure chamber disclosed in the working examples is 2 liters (column 7, lines 32-34; column 9, lines 58-61), and no guidance is provided to extend the disclosed method to habitable enclosed volumes. Rosenblatt discloses the use of chlorine dioxide concentrations in the range of 1.0 to 300 mg/L, roughly 1-300 ppm (col.3, lines 31-36).

As recognized in the Office Action, Rosenblatt fails to restore habitability, a limitation of claim 1 of the present invention. Claims 2-5 and 7-38 are directly or indirectly dependent on claim 1. The Rosenblatt reference thus does not teach or suggest the present claimed invention.

The Office Action states that with respect to claims 15-17, 19-20, 25-30 and 34-35, the Rosenblatt et al method intrinsically involves such steps, citing col. 4, lines 20-26 ("The concentration of chlorine dioxide gas employed in conjunction with the foregoing humidification procedure preferably ranges from about 10 mg/L to about 40 mg/L."). As noted above, 10-40 mg/L is approximately equal to 10-40 ppm. The preferred embodiments and

examples of the present invention disclose maintaining the concentration of chlorine dioxide in the volume during fumigation at levels from 500 ppm to about 3000 ppm. The chlorine dioxide concentrations in the range of 1.0 to 300 mg/L, roughly 1-300 ppm, preferably 10-40 ppm disclosed by Rosenblatt are orders of magnitude lower.

Claims 15-17 of the present invention recite that chlorine dioxide is present in the introduced gas at levels of at least 90%, at least 95% or at least 99%. Similarly, it is not clear how the use of chlorine dioxide concentrations in the inert carrier gas of 1.0 to 300 mg/L, roughly 1-300 ppm, preferably 10-40 ppm disclosed by Rosenblatt “intrinsically involves” chlorine dioxide present in the introduced gas at levels of at least 90%, at least 95% or at least 99%. Claims 19-20 recite that the chlorine dioxide contains less than 5% or less than 0.5% chlorine gas. The Rosenblatt reference does not disclose a minimum percent of chlorine gas, but does recognize that chlorine gas can be a breakdown product of chlorine dioxide (col. 5, lines 12-13).

ii. The Combination of Hedman et al. and Rosenblatt Does Not Teach or Suggest the Claimed Invention.

The combination of the Hedman reference with the Rosenblatt reference does not cure the defects of the Rosenblatt reference that are discussed above. The combined references neither teach nor suggest the present claimed invention.

The Hedman et al. reference neither teaches nor suggests the use of chlorine dioxide to fumigate a habitable volume. According to the abstract, the Hedman et al. reference discloses a method and kit of components for destroying organisms and toxins in an enclosure such as a building. Temperature sensing probes are installed in the enclosure to indicate structure temperature and a recorder is used to record the temperature of said sensing probes in real time. Hot air is introduced into the enclosure through one or more ducts to raise the structure temperature to at least about 120 °F, as monitored by the temperature sensing probes. The air can exit through open doors and windows or through ducts to a filter assembly that captures the remains of the organisms. Ozone may be added to the heated air to improve efficiency.

One of ordinary skill in the art would not combine the teachings of Hedman and Rosenblatt to arrive at the claimed invention. Hedman teaches fumigation of a structure at a temperature of at least 120 °F, generally in the range of 120-300 °F, preferably at least about

155 °F (column 3, lines 4-9). In fact, Hedman teaches the preparation of the building to be fumigated by removal of all heat sensitive items from the enclosure or, in some cases, covering heat sensitive items with thermal insulation material. All material that has a flash point below the maximum temperature to be used must be removed (column 3, lines 56-60). Chlorine dioxide is known to be explosive above -40 degrees C (Kaczur, J.J., et al., "Chlorine Oxygen Acids and Salts, Chlorous Acid, Chlorites and Chlorine Dioxide," in Kirk-Othmer Encyclopedia of Chemical Technology, John Wiley & Sons, 1993). One of ordinary skill would not combine the chlorine dioxide of Rosenblatt with the heated air of Hedman to arrive at the present claimed invention.

Hedman teaches that the interior of the building preferably is at a positive pressure with respect to its surroundings (column 3, lines 24-34; column 4, lines 62-63; column 5, lines 22-23). However, in the present invention, the volume requiring fumigation is preferably to be at slightly negative pressure to areas outside of it and efforts are made to seal off the volume through the use of strippable sealant. Hedman does not teach climatizing the enclosed volume wherein the step of climatizing includes the step of adjusting the relative humidity. Hedman does not teach the substitution of any gas for ozone.

As noted in the Response mailed July 31, 2003, Ronlan (U.S. Pat. No. 6,500,465, Disinfecting and sporocidal composition and process for decontaminating buildings) strongly teaches away from using oxidizing gases such as ozone or chlorine dioxide for decontaminating buildings:

Numerous attempts have been made to use oxidizing gases such as ozone or chlorine dioxide for decontaminating large buildings. However, the results have invariably been very disappointing. This is to some extent due to the inherent inability of gases to penetrate a porous structure within a reasonable time. In fine pores diffusion is the only way for a gas to spread, and this process is slow. Mainly, though, the failure of ozone and chlorine dioxide in building decontamination is due to the instability and extreme reactivity of these gases. They are very toxic to man and will also corrode virtually any oxidizeable material, (metals, wood, textiles, plants, plastics, etc.) Actually the major part of these gases will be consumed in unwanted oxidation reactions, that cause collateral damage, and for health and safety reasons is basically not possible to apply these gases at the levels required for efficient decontamination to take place. (column 1, lines 29-45).

In view of Ronlan, one of ordinary skill would not combine the teachings of Rosenblatt and Hedman to arrive at the present claimed invention. However, for the sake of argument, if these references were to be combined, the combination of Rosenblatt and Hedman neither teaches nor suggests the present claimed invention. One glaring shortcoming is that the combination neither teaches nor suggests that in scaling the process up from the 2 liter sterilizer of Rosenblatt to the building of Hedman, not only must the volume of fumigation gas be increased, but the concentration of chlorine dioxide in the fumigating gas must be increased several orders of magnitude, from 1-300 ppm to 500-3000 ppm. The rejection of claims 1-11 and 14-37 over Rosenblatt et al. in view of Hedman et al. is unwarranted and should be withdrawn.

b. The Combination of Smith et al. (U.S. Patent No. 4,780,333) with Rosenblatt and Hedman Does Not Teach or Suggest the Claimed Invention.

The addition of the Smith reference to the combination of the Rosenblatt and Hedman references does not cure the defects of the Rosenblatt and Hedman references that are discussed above. While the Smith reference discloses the treatment of an air conditioning system, preferably the conditioning system of a motor vehicle, it neither discloses nor suggests the treatment of the vehicle itself, or a vehicle lacking an air conditioning system such as the trailer of Example 1 of the present application. The combined references neither teach nor suggest the method for fumigating a previously habitable enclosed volume and contents and restoring habitability. The Applicant respectfully submits that the rejection of claim 12 over Rosenblatt et al. in view of Hedman et al. and further in view of Smith et al. is unwarranted and should be withdrawn.

c. The Combination of Halaby, Jr.. (U.S. Patent No. 4,272,019) with Rosenblatt and Hedman Does Not Teach or Suggest the Claimed Invention.

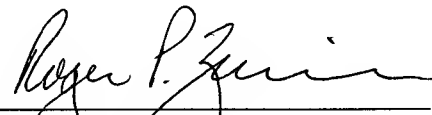
The addition of the Halaby reference to the combination of the Rosenblatt and Hedman references does not cure the defects of the Rosenblatt and Hedman references that are discussed above. The Halaby reference discloses an apparatus and method for the controlled, intermittent, automatic dispensing of atomized fluid, such as an insecticide, into a use area, such as a barn, characterized in that the apparatus and its method of use are controlled to dispense fluid

approved for use in the particular use area and supplied from an approved container provided with a vented fluid outlet and dispenser having a code cooperating with a code of a fluid inlet and dispenser means associated with the apparatus. The combined references neither teach nor suggest the method for fumigating a previously habitable enclosed volume and contents with chlorine dioxide gas and restoring habitability. The Applicant respectfully submits that the rejection of claim 13 over Rosenblatt et al. in view of Hedman et al. and further in view of Halaby is unwarranted and should be withdrawn.

CONCLUSION

In view of the amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone call would expedite the prosecution of this case, the Examiner is invited to call the undersigned at (508) 416-2433.

Respectfully submitted,
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